ABSTRACT

Fast restoration of an IP network in the event of a link failure is achieved, in advance of the conventional recalculation scheme which remains as a second phase of restoration, by pre-calculating for the network a minimum number of spanning trees arranged to provide alternative paths in the event that communication between two routers is determined to have failed, by providing routing tables based upon the spanning trees and by switching to the new routing tables when a link failure is detected using high speed detection at the physical layer to avoid delay. An algorithm is provided to calculate the spanning trees which are kept to a low number of two or three which is practical for storage in the memory of the routers.